UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Resource Recovery (Pasco San Lofft)
1.1.1

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M/S 525

MEMORANDUM

SUBJECT: National Dioxin Strategy: Tier 2A Sampling Plans

FROM: Lori Cohen
Superfund Branch

THRU: James M. Everts, Acting Chief
Superfund Branch

TO: Mike Cook, Deputy Director
Office of Solid Waste (WH-562)

This memo is to follow-up correspondence between Headquarters and Region 10 over the past few months regarding the development of sampling plans at five sites in Region 10 that are being investigated under Tier 2a of the National Dioxin Strategy. I believe there are a few issues that have not yet been adequately resolved. These issues are listed briefly below and are discussed in detail on the following pages:

1. Tier 2a sites: how to determine the appropriate sample site for the 'screening phase' of the dioxin investigations;
2. Dioxin isomers other than 2378 TCDD and furans: what analyses and follow-up is appropriate;
3. Agency-wide plans for site follow-up at Tier 1-7 sites: what levels of dioxin will 'trigger' further action.

Draft sampling plans will be be ready for Headquarters and state review in March -April 1985, therefore we would like to resolve these issues as soon as possible.

Background

The five Tier 2a sites in Region 10 are landfills where Rhone Poulenc Co. of Portland, Oregon (a Tier 2 site) disposed of their wastes. Two of these sites, Envirosafe Services of Idaho, Inc. and Chemical Security Systems, Inc. in Oregon, are being extensively reviewed as part of the RCRA permitting process. We are making arrangements for review of the RCRA plans to be sure they are adequate to detect and correct off-site dioxin contamination at these two sites. This memo only addresses the other three Tier 2a sites - St. John's Landfill and Alkali Lake in Oregon, and Pasco Sanitary Landfill in Washington. St. John's Landfill and Pasco Sanitary landfill are currently operating facilities.

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Issue #1. Number of samples to be collected at Tier 2a sites.

The National Dioxin Strategy indicates that a maximum of 10 samples should be collected at Tier 1,1a,2 and 2a sites to determine whether 2378 TCDD is present. A January 1985 memo from L. Folmar indicates that "in extraordinary circumstance, the number of samples could be increased to 15-20" during this screening process. These guidelines are not applicable to the three sites mentioned above.

These three sites will require more extensive sampling than Headquarter's guidelines suggest for two reasons: 1) These are large sites, and 2) the exact location of the Rhone Poulenc wastes (that are potentially contaminated with dioxin) is unknown.

Ecology and Environment, the FIT contractor assigned to this project, is working to minimize the cost of each investigation through:

o Record reviews and interviews to identify areas most likely to contain the Rhone Poulenc wastes.

o Statistical analysis to reduce the number of samples but assure that we have covered each area.

o Plans to composite samples and thus reduce the number of initial lab analyses needed to confirm whether or not dioxin is present on each site. The individual samples will be saved for further analysis if one composite comes up positive.

o Consideration of unique investigation techniques to locate the wastes and to sample the areas.

Even with E&E's efforts to minimize the cost of the investigations, they estimate that a six man team will be required at each site for 1-2 weeks. Note that:

o In St. John's Landfill, approximately 5000 drums of wastes from Rhone Poulenc are buried somewhere under 50 ft. of refuse in an area that covers 200 acres. Plans are to try and locate the drums using geophysical investigation techniques. If the drums are located, groundwater sampling wells will be concentrated downgradient of that area. If the drums are not located, approximately 30 wells will be required to sample the perimeter of the disposal areas, and thus test for dioxin migration from the disposal sites.

o At Alkali Lake, there are 25,000 drums of Rhone Poulenc wastes are buried over an area covering 450 x 1000 ft. Adjacent lands were landfarmed with the waste as part of a research project on waste degradation. The landfarmed areas should also be sampled. This will require approximately 1200 soil samples which can then be composited to 120 samples for initial analysis.

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o Pasco Sanitary Landfill (250 acres) contains at least 5400 drmus of Rhone Poulenc waste. The wastes are most likely buried in one of three areas that cover a total of 67,000 sq. ft. Plans are to sample the perimeter or beneath each disposal area. The number of samples is dependent upon sampling techniques, and has not yet been determined. Estimates are on the order of 25-30 samples.

In sum, the 15-20 samples suggested by Headquarters is inadequate for investigating these sites and to subsequently be in a position to say with confidence whether or not dioxin is present on each site and if furthur action under Superfund is necessary. Headquarter's review of the sampling plans must take these circumstances into consideration. E & E will fully document the sampling rationale in each sampling plan. However, if you anticipate that these plans will conflict with Headquarter's policy, I would like to work with you to resolve any problems as soon as possible.

Issue #2. Dioxin isomers other than 2378 TCDD and furans: analyses and follow-up.

The following discusses this issue in terms of how we perceive Headquarter's current approach in this area, and how Region 10 is approaching these issues.

Headquarters View:

The National Dioxin Strategy calls for regions to "collect sufficient sample volumes to analyze for both 2378 TCDD and dioxin-like compounds at those sites sampled in Tiers 1-7" (see Strategy, Nov. 1983, p. 23).

Region 10 supports the intent of the Strategy to reduce sampling costs for "other isomers" by taking sufficient samples while on-site to sample for 2378 TCDD. "Other isomer" analysis in the Agency seems to currently focus on homologue analysis. We will use homologue data for initial site investigation work, but we do not think homologue data will be applicable for all Superfund remedial investigations. From homologue data, one cannot identify a contaminant of concern and conduct a risk assessment to determine what remedial action is appropriate.

The "2378 TCDD equivalents method for risk assessments" that is being developed (Bellins and Barnes, 1984) is a good approach and will help answer questions about how to interpret dioxin data. However, one point of concern is where the approach states that if isomer-specific data is

not available, tetra, penta and hexa homologue data will be interpreted as "worst case". This interpretation may be more costly to the Agency than the cost of isomer-specific analysis at the outset of a remedial investigation.

Perhaps you can clarify the theory behind the "TCDD Equivalents Method," describe agency plans to implement this approach, and provide information as to whether the Agency is investigating isomer specific analysis techniques.

Region 10 Plans:

At the Tier 2a sites, we plan to collect sufficient samples for "other isomer" analysis and, as lab capability becomes available, analyze for the tetra, penta and hexa homologues. Will the three contract labs handling the dioxin sampling for the national strategy or the CLP be available during late summer 1985 to handle this large volume of samples?

In the event that we have difficulty finding space within EPA contract labs, we tasked E & E to determine what other labs in the country are capable of conducting the homologue analyses and to provide cost estimates for the analyses. Region 10 chemists will review analytical protocols for each interested lab, and if the protocols are acceptable, we will negotiate Special Analytical Services (SAS) through the contract lab program for this work. Support from Headquarters in finding lab space would be helpful.

Issue #3. Plans for Site Follow-Up at Tier 1-7 Sites.

EPA is engaged in an active sampling program for Tiers 1-7. However, there is no consistent plan for follow-up at sites where dioxin is detected. The only action level currently documented by EPA is the level above which the Center for Disease Control (CDC) determined to be hazardous in residential soil - 1 ppb 2378 TCDD. Rural and remote areas are not considered in the CDC risk assessment. It is not clear as to what level of 2378 TCDD or "other isomers" should trigger furthur activity at the Tier 1-7 sites, particularly in non-residential areas.

Case by case risk assessments will be difficult to substantiate in any public forum where the affected community will (without a doubt) be alarmed at the presence of any level of dioxin contaminated soil, water, or residue. The agency should establish a plan of action before positive results from these investigations put us in strictly a reactive mode.

Finally, EPA must determine what authority can be used to take action at sites known to be contaminated with dioxin isomers other than 2378 TCDD and furans. The RCRA dioxin listing of January 14, 1985 does not apply in all instances. If sampling and analysis for "other isomers" turn up positive results without positive identification of 2378 TCDD, what next steps should be taken? What levels of "other isomers" and furans are of concern to the Agency? What authority can we use to require dioxin clean-up at non-NPL sites?

These are critical questions in Region 10. Assistance in these matters is requested.

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